

CLAIMS

I claim

1. **HYPERBALOID** three dimensional free standing static structures consisting of four or more discontinuous compression members or struts arranged to form elements of the surface of a hyperboloid of revolution of one sheet and with tension members or guys arranged in a circumferential, a radial or an internal configuration connecting the strut ends of each "end-plane" and in combination with the vertical guys in an internal configuration or on the surface of a separate hyperboloid of revolution of one sheet.

2. **HYPEROLOID** structures combined with other complete or partial structures as in claims 1,3,4,6,7,9 and 11 or combined with other traditional structures in a nested (overlapping) or adjacent configuration wherein the struts or guys may or may not intersect and common elements may or may not be eliminated from the structure for economy reasons.

3. **HYPEROLOID** three dimensional free standing static structures consisting of three discontinuous compression members or struts arranged to form elements of the surface of a hyperboloid of revolution of one sheet and with tension members or guys arranged in a circumferential, a radial or an internal configuration connecting the strut ends of each "end-plane" and in combination with the vertical guys in an internal configuration or on the surface of a separate hyperboloid of revolution of one sheet.

4. **PLANAR** three dimensional free standing static structures consisting of three and six compression members or struts arranged to form elements of the surfaces of three intersecting planes which may or may not be orthogonal and where the struts in each plane may or may not be parallel and with tension members or guys arranged in a

radial, a linear or an internal configuration connecting the strut ends defining the polygonal faces of these structures.

5. **PLANAR** structures combined with other complete or partial structures as in claims 1,3,4,6,7,9 and 11 or combined with traditional structures in a nested (overlapping) or adjacent configuration wherein the struts or guys may or may not intersect and common elements may or may not be eliminated from the structure for economy reasons.

6. **PLANAR** three dimensional free standing static structures consisting of four, five and seven or more compression members or struts arranged to form elements of the surface of a minimum of three intersecting planes which may or may not be orthogonal and where the struts in each plane may or may not be parallel and may or may not intersect each other at an internal or a peripheral point and with tension members or guys arranged in a circumferential, a radial, a linear or an internal configuration connecting the strut ends defining the polygonal faces of these structures.

7. **HY-PAR** three dimensional free standing static structures consisting of four or more discontinuous compression members or struts arranged to form a minimum of two hyperbolic paraboloid surfaces which may or may not be orthogonal and with a minimum of two struts in each surface with tension members or guys arranged in a circumferential, a radial, a linear or an internal configuration connecting the strut ends defining the “end-planes” and with linear guys between ends of struts not on the edges of the hyperbolic paraboloid surfaces.

8. **HY-PAR** structures combined with other complete or partial structures as in claims 1,3,4,6,7,9 and 11 or combined with traditional structures in a nested (overlapping) or adjacent configuration wherein the struts or guys may or may not intersect and common elements may or may not be eliminated from the structure for economy reasons.

9. **RADIAL** three dimensional free standing static structures consisting of four or more compression members or struts arranged to form elements radiating from an internal central point which is not necessarily the exact center point and with tension members or guys arranged in a circumferential, a linear, a radial or an internal configuration connecting the outer strut ends defining the polygonal faces of these structure.

10. **RADIAL** structures combined with other complete or partial structures as in claims 1,3,4,6,7,9 and 11 or combined with traditional structures in a nested (overlapping) or adjacent configuration wherein the struts or guys may or may not intersect and common elements may or may not be eliminated from the structure for economy reasons.

11. **POLYGONAL** three dimensional free standing static structures consisting of four or more compression members or struts arranged in a generally radial manner with the outer ends of these struts connected by guys that are in a circumferential, a radial, a linear or an inward configuration such that an inward force is applied to the struts and with the inner strut ends connected by guys that are in a circumferential, a radial, a linear or an inner configuration such that an outward force is applied to the struts balancing the aforementioned inward force and resulting in structural integrity of these structures.

12. **POLYGONAL** structures combined with other complete or partial structures as in claims 1,3,4,6,7,9 and 11 or combined with traditional structures in a nested (overlapping) or adjacent configuration wherein the struts or guys may or may not intersect and common elements may or may not be eliminated from the structure for economy/reasons.

13. Three dimensional free standing static structures as in claims 1 through 12 that are collapsible by means of disconnecting guys from struts or by means of elongating selected guys or shortening selected struts.

14. Three dimensional free standing structures as in claims 1 through 12 that utilize various amounts of pre-stress to achieve design goals.

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